

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
30 June 2005 (30.06.2005)

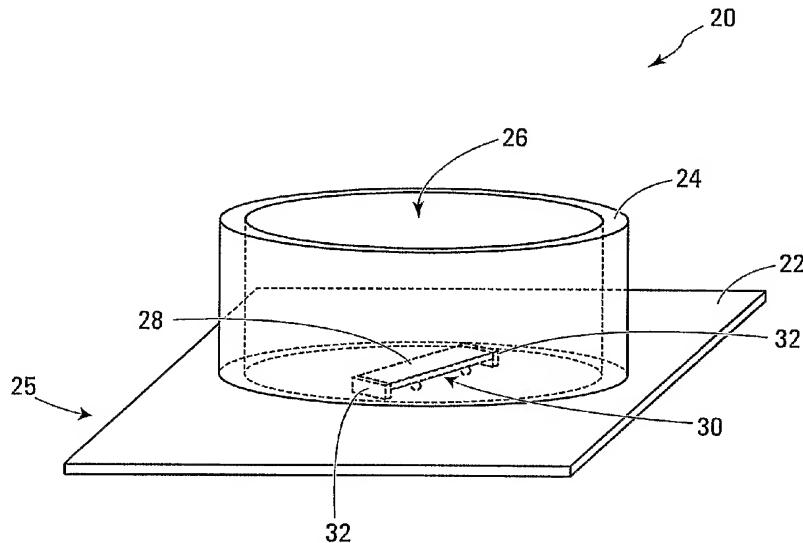
PCT

(10) International Publication Number  
**WO 2005/059088 A1**

- (51) International Patent Classification<sup>7</sup>: **C12M 3/00**, C12N 5/00
- (21) International Application Number: PCT/CA2004/002138
- (22) International Filing Date: 17 December 2004 (17.12.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/530,614 19 December 2003 (19.12.2003) US
- (71) Applicant (for all designated States except US): **UNIVERSITY OF WATERLOO** [CA/CA]; Technology Transfer & Licensing Office, 200 University Avenue West, NH1043, Waterloo, Ontario N2L 3G1 (CA).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **JERVIS, Eric** [CA/CA]; #4-415 Kingscourt Drive, Waterloo, Ontario N2K 3R4 (CA). **RAMUNAS, John** [CA/CA]; 314 Kirchoffer Avenue, Ottawa, Ontario K2A 1Y3 (CA).
- (74) Agent: **ZISCHKA, Matthew**; SMART & BIGGAR, 438 University Avenue, Suite 1500, Box 111, Toronto, Ontario M5G 2K8 (CA).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: CULTURED CELL AND METHOD AND APPARATUS FOR CELL CULTURE



**WO 2005/059088 A1**

(57) **Abstract:** One or more cells can be cultured when confined in space by barriers. The distance between barriers can be comparable to the size of a cell to be cultured. The space between barriers can also be sufficiently small to allow control of cell properties or monitoring of the cell(s) cultured therein. The cell(s) may be confined completely or may be mobile between two opposing barrier surfaces. The gap between two opposing barriers may be sufficiently narrow to allow only a monolayer of cells to be cultured. A barrier can be transparent. The surfaces of the barriers may have one or more pre-selected characteristics that mimic the characteristics of a biological niche of the cells(s). The number of cells in a cell culture may be limited to permit control of properties of individual cells. The cultured cell(s) may be monitored, such as imaged, over a long period of time, using standard bright field or fluorescent imaging techniques.



**Published:**

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*